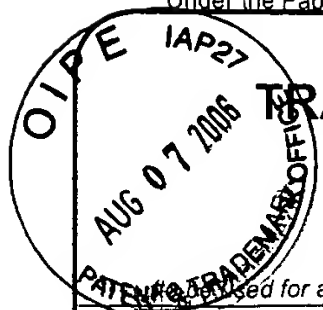


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TRANSMITTAL  
FORM

Total Number of Pages in This Submission

Application Number	09/813,656
Filing Date	March 20, 2001
First Named Inventor	Robert Heath
Art Unit	2634
Examiner Name	Curtis B. Odom
Attorney Docket Number	P15413

## ENCLOSURES (Check all that apply)

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Fee Transmittal Form<br><input type="checkbox"/> Fee Attached<br><input type="checkbox"/> Amendment/Reply<br><input type="checkbox"/> After Final<br><input type="checkbox"/> Affidavits/declaration(s)<br><input type="checkbox"/> Extension of Time Request<br><input type="checkbox"/> Express Abandonment Request<br><input checked="" type="checkbox"/> Information Disclosure Statement<br><br><input type="checkbox"/> Certified Copy of Priority Document(s)<br><input type="checkbox"/> Reply to Missing Parts/Incomplete Application<br><input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)<br><input type="checkbox"/> Licensing-related Papers<br><input type="checkbox"/> Petition<br><input type="checkbox"/> Petition to Convert to a Provisional Application<br><input type="checkbox"/> Power of Attorney, Revocation<br><input type="checkbox"/> Change of Correspondence Address<br><input type="checkbox"/> Terminal Disclaimer<br><input type="checkbox"/> Request for Refund<br><input type="checkbox"/> CD, Number of CD(s) _____<br><input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC<br><input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences<br><input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)<br><input type="checkbox"/> Proprietary Information<br><input type="checkbox"/> Status Letter<br><input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):<br>Copies of nineteen (19) cited references<br>Return Postcard |
|---|--|--|

Remarks

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Intel Corporation		
Signature	/s/Michael A. Proksch/Reg. No. 43,021/		
Printed name	Michael A. Proksch		
Date	08/02/2006	Reg. No.	43,021

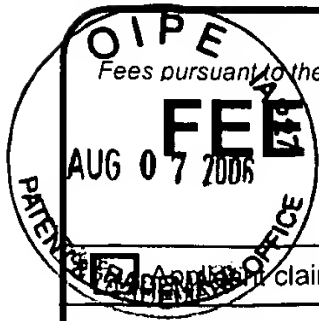
## CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Derek S. Watson	Date	08/02/2006

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Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

# TRANSMITTAL

## For FY 2005

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 180.00

## Complete if Known

Application Number 09/813,656  
 Filing Date March 20, 2001  
 First Named Inventor Robert W. Heath  
 Examiner Name Odom, Curtis B.  
 Art Unit 2634  
 Attorney Docket No. P15413

## METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_  
☒ Deposit Account Deposit Account Number: 50-0221 Deposit Account Name: Intel Corporation

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee  
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

## FEE CALCULATION

## 1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

## 2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims Extra Claims Fee (\$) Fee Paid (\$) Multiple Dependent Claims Fee (\$) Fee Paid (\$)  
 - 20 or HP = x =

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims Extra Claims Fee (\$) Fee Paid (\$)  
 - 3 or HP = x =

HP = highest number of independent claims paid for, if greater than 3.

## 3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets Extra Sheets Number of each additional 50 or fraction thereof Fee (\$) Fee Paid (\$)  
 - 100 = / 50 = (round up to a whole number) x =

## 4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Information Disclosure Statement 180.00

## SUBMITTED BY

Signature	/s/Michael A. Proksch/Reg. No. 43,021/	Registration No. (Attorney/Agent) 43,021	Telephone 503-264-3059
Name (Print/Type)	Michael A. Proksch		Date 08/02/2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Robert Heath, et al.

Application No.: 09/813,656

Filed: March 20, 2001

For: **A METHOD, SYSTEM AND APPARATUS  
FOR DISPLAYING THE QUALITY OF DATA  
TRANSMISSIONS IN A WIRELESS  
COMMUNICATION SYSTEM**

Art Group: 2634

Examiner: Odom, Curtis

### INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty to disclosure, included herewith is form PTO/SB/08 or PTO-1449 indicating references cited and copies of the cited art except for copies not required to be submitted (e.g., copies of US patents and US published patent applications need not be enclosed). This IDS and IDS Citation Form are being submitted before the mailing of a final Office Action. It is respectfully requested that the cited references be considered and that the enclosed copy of PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

Pursuant to 37 C.F.R. § 1.97 the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

Please charge any additional fee due to Deposit Account 50-0221. A duplicate copy of the Fee Transmittal is enclosed for this purpose.

08/08/2006 HDESTA1 00000033 500221 09813656  
01 FC:1806 180.00 DA


Respectfully submitted,  
Intel Corporation

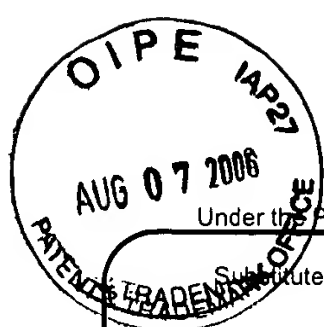
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Michael A. Proksch, Reg. No. 43,021

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Derek S. Watson

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	09/813,656
Filing Date	03/20/2001
First Named Inventor	Robert Heath
Art Unit	2634
Examiner Name	Odom, Curtis
Attorney Docket Number	P15413

Sheet 1 of 8

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 4,554,552	11-1985	Alford et al.	
		US- 6,714,514	03-2004	Espax et al.	
		US- 6,411,824	06-2002	Edison	
		US- 6,081,566	06-2000	Molnar et al.	
		US- 6,400,699	06-2002	Airy et al.	
		US- 6,351,499	02-2002	Paulraj et al.	
		US- 6,317,420	11-2001	Schiff	
		US- 6,067,290	05-2000	Paulraj et al.	
		US- 5,642,353	06-1997	Roy et al.	
		US- 5,515,378	05-1996	Roy et al.	
		US- 6,452,981	09-2002	Raleigh et al.	
		US- 5,901,354	05-1999	Menich et al.	
		US- 6,535,497	03-2003	Raith	
		US- 6,249,669	06-2001	Ogino et al.	
		US- 5,608,765	03-1997	Tanoue	
		US- 5,894,598	04-1999	Shoki	
		US- 6,317,435	11-2001	Tiedemann	
		US- 6,069,883	05-2000	Ejzak et al.	
		US- 6,049,543	04-2000	Sauer et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
		WO 98/09385	03-1998	Raleigh		
		WO 98/09381	03-1998	Raleigh		
		WO 98/34424	08-1996	Driessen		
		WO 00/79722	12-2000	Alamouti		
		WO 96/22662	07-1996	Barratt et al.		
		EP 1 185 001	03-2002	Wu et al.		

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SignatureDate  
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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

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**Complete if Known**

Application Number	09/813,656
Filing Date	03/20/2001
First Named Inventor	Robert Heath
Art Unit	2634
Examiner Name	Odom, Curtis
Attorney Docket Number	P15413

Sheet 2 of 8

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 5,936,949	08-1999	Pasternak et al.	
		US- 5,923,650	07-1999	Chen et al.	
		US- 5,752,193	05-1998	Scholefield et al.	
		US- 6,144,711	11-2000	Raleigh et al.	
		US- 5,815,488	09-1998	Williams et al.	
		US- 5,933,421	08-1999	Alamouti et al.	
		US- 6,064,662	05-2000	Gitlin et al.	
		US- 6,192,026	02-2001	Pollack et al.	
		US- 6,097,771	08-2000	Foschini	
		US- 6,058,105	05-2000	Hochwald et al.	
		US- 6,278,697	08-2001	Brody et al.	
		US- 6,243,367	06-2001	Hussain	
		US- 6,163,547	12-2000	De Vriendt et al.	
		US- 6,097,704	08-2000	Jackson et al.	
		US- 5,136,528	08-1992	Fordham et al.	
		US- 6,441,721	08-2002	Tajima et al.	
		US- 5,535,242	07-1996	Bridida et al.	
		US- 6,266,527	07-2001	Mintz	
		US- 5,940,771	06-2002	Gollnick et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

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Application Number	09/813,656
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First Named Inventor	Robert Heath
Art Unit	2634
Examiner Name	Odom, Curtis
Attorney Docket Number	P15413

Sheet 3 of 8

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 6,563,790	05-2003	Yu et al.	
		US- 5,721,733	02-1998	Wang et al.	
		US- 6,185,258	02-2001	Alamouti	
		US- 6,650,878	11-2003	Abe et al.	
		US- 6,802,035	10-2004	Catreux et al.	
		US- 4,347,627	08-1982	Alter	
		US- 6,583,400	06-2003	Miyoshi	
		US- 5,781,583	07-1998	Bruckert et al.	
		US- 5,832,044	11-1998	Sousa et al.	
		US- 6,370,129	04-2002	Huang	
		US- 6,317,466	11-2001	Foschini et al.	
		US- 5,592,490	01-1997	Barratt et al.	
		US- 5,345,599	09-1994	Paulraj et al.	
		US- 5,504,936	04-1996	Lee	
		US- 5,729,825	03-1998	Kostreski et al.	
		US- 5,732,075	03-1998	Tangemann et al.	
		US- 5,841,971	11-1998	Longginou et al.	
		US- 5,642,353	06-1997	Roy III et al.	
		US- 5,828,658	10-1998	Ottersten et al.	

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

Examiner Signature		Date Considered	
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Art Unit	2634
Examiner Name	Odom, Curtis
Attorney Docket Number	P15413

Sheet 4 of 8

**U. S. PATENT DOCUMENTS**

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		Number-Kind Code <sup>2</sup> (if known)			
		US- 5,592,471	01-1997	Briskman	
		US- 6,490,256	12-2002	Jones et al.	
		US- 6,058,114	05-2000	Sethuram et al.	
		US- 6,778,501	08-2004	Malmgren et al.	
		US- 6,763,491	07-2004	McDonnell	
		US- 6,473,399	10-2002	Johansson et al.	
		US- 5,559,810	09-1996	Gilbert et al.	
		US- 6,021,124	02-2000	Haartsen et al.	
		US- 6,842,487	01-2005	Larsson	
		US- 6,185,440	02-2001	Barratt et al.	
		US- 6,850,481	02-2005	Wu et al.	
		US- 6,473,467	10-2002	Wallace	
		US- 6,507,605	01-2003	Fukumoto et al.	
		US- 6,757,241	06-2004	Jones et al.	
		US- 6,888,809	05-2005	Foschini et al.	
		US- 5,886,988	03-1999	Yun et al.	
		US- 5,819,168	10-1998	Golden et al.	
		US- 5,361,276	11-1994	Subrumanian	
		US- 5,627,861	05-1997	Kataoka et al.	

**FOREIGN PATENT DOCUMENTS**

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

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Considered

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**Complete if Known**

Application Number	09/813,656
Filing Date	03/20/2001
First Named Inventor	Robert Heath
Art Unit	2634
Examiner Name	Odom, Curtis
Attorney Docket Number	P15413

Sheet 5 of 8

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 5,715,240	02-1998	Borras et al.	
		US- 5,867,478	02-1999	Baum	
		US- 5,889,759	03-1999	McGibney	
		US- 6,198,775	03-2001	Khayrallah et al.	
		US- 5,832,044	11-1998	Sousa et al.	
		US- 6,108,565	08-2000	Scherzer	
		US- 6,104,661	11-2000	Goldburg	
		US- 5,999,800	12-1999	Choi et al.	
		US- 6,175,550	01-2001	Van Nee	
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**FOREIGN PATENT DOCUMENTS**

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

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		Application Number	09/813,656
		Filing Date	03/20/2001
		First Named Inventor	Robert Heath
		Art Unit	2634
		Examiner Name	Odom, Curtis
Sheet 7	of 8	Attorney Docket Number	P15413

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Paulraj, A. et al., "Space-Time Processing for Wireless Communications", IEEE Signal Processing Magazine, November 1997, pp 49-83.	
		Paulraj, A., "Taxonomy of Space-Time Processing for Wireless Networks", IEEE Proc. - Radar Sonar Navig., Vol 145, No. 1 February 1998.	
		Andrews, M. et al., "Tripping the Capacity of Wireless Communications using Electromagnetic Polarization", Nature Magazine, 1/18/01, pp 316-318, Vol. 409, Macmillian Magazine.	
		Bertoni, Henry L., "Talk is cheap in the City", Nature Magazine, January 18, 2001, pp 291-292, Vol. 409, Macmillian Magazines.	
	+	Sumeet Sanhu and A. Paulraj, October 6, 2000, Wireless Conference Presented Paper.	
		Ralieggh et al., "Spatio-Temporal Coding for Wireless Communication", March 1998, IEEE Transactions on Communications.	
		A. Maleki et al., "Space-Time Coding Transmission Optimization for Wireless Channels" July 1998, IEEE.	
		A. Scaglione et al., "Filterbank Transceivers Optimization Information Rate in Block Transmission over Drepssive Channnels", April 1999, IEEE	
		A.Scaglione et al., Redundant Filterbank Precoders and Equalizers Part 1: Unification and Optimal Designs, July 1999 Transactions on Signal Processing	
		R. Negi et al., "Adaptive Antennas for Space-Time Coding over Block-Time Invariant Multi-Path Fading Channels, 1999, IEEE	

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		D. Shiu et al., Fading Correlation and Its Effects on the Capacity of the Multielement Antenna Systems, IEEE Transactions on Communications, Vol. 48, No. 3, 03/00.	
		H. Bolcskei et al., Performance of Space-Time Codes in the Presence of Spatial Fading Correlation, IEEE, 2000.	
		H. Sampath et al. Generalized Linear Precoder and Decoder Design for MIMO Channels using the Weighted MMSE Criterion, IEEE Transactions on Communications, Vol. XX, No. Y, 2001	

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